REMARKS

Applicants' attorney thanks the Examiner for her comments. Claim 1 has been amended to indicate that the second layer (comprising a thermoplastic film) is heat shrinkable, and to recite the step of differentially heat shrinking the second layer relative to the first layer. Support is found on p. 11, lines 9-14, where the term "shrinkage extent" is defined as shrinkage activated by the application of heat. Further support is found on p. 23 lines 5-16.

Claim 1 is further amended to indicate the formation of apertures only through the second layer (i.e. not through the first layer or the entire composite). Support is found in Fig. 1, p. 18 lines 7-9, and p. 19 lines 7-9. Claim 1 is further amended to state that the apertures are effective in transferring particles into the structured composite material and the first layer is effective in retaining them. Support is found on p. 19 lines 7-9. As illustrated in Fig. 1, liquid which contains particles can enter the structure 10 through the apertures 45 in the second layer 30. The mixture enters the space 40 between the second layer 30 and the first layer 20. The liquid may then pass through the first layer 20, while the particles are retained by the first layer 20 (which comprises a fibrous nonwoven web).

Claims 4 and 15 have been cancelled.

a) Claim Rejections Based On Wu

The rejection of Claims 1 and 16-17 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 5,422,172 ("Wu") is respectfully traversed. The rejection of Claims 2, 4, 11-15, 19-20 and 42-43 under 35 U.S.C. 103(a) as obvious over Wu is respectfully traversed.

Regarding Claim 1 (from which the other claims depend), Wu does not disclose a heat shrinkable second layer comprising a film, or the step of differentially heat shrinking a second layer relative to a first layer. Wu also does not disclose the step of forming apertures only through the second layer after extrusion. Wu also does not disclose apertures effective in transferring particles into a structure where a first layer is effective in retaining them.

Wu discloses an elastic laminated sheet of an incrementally stretched nonwoven web and an elastomeric film. The elastic film returns to an unstretched state without requiring heat (Col. 2 lines 30-33 and 55-60). The elastic film apparently does not shrink further when heat is applied, and is therefore not heat shrinkable. There is no disclosure of a differential heat shrinking step.

Applicants' specification defines "shrinkage extent" as an amount of shrinkage which results from activation, such as by heating a component to above its shrinkage temperature. When measured according to this definition, the elastic film of Wu would have a shrinkage extent of zero. Because the film returns to an original (unstretched) state at ambient temperature, the application of heat would not cause further shrinkage.

Furthermore, Wu discloses forming mechanical microvoids through the entire laminate or composite (Col. 3 lines 20-23). The term "microvoids" typically refers to very small openings for transmitting air or water vapor, but not liquid water or particles. The disclosed process does not form apertures only in the second layer, so that the apertures would transfer particles into the structure and the first layer would retain them.

For these reasons, the rejections under 35 U.S.C. § 102(b) and § 103(a) based on Wu should be withdrawn.

b) Claim Rejections Based On Taylor et al In View Of Haffner et al.

The rejection of Claims 1-2, 5-6, 11-14, 16-17, 19-20 and 42-43 under 35 U.S.C. § 103(a) as obvious over WO 00/38918 ("Taylor et al") in view of U.S. Patent 5,514,470 ("Haffner et al") is respectfully traversed. Taylor et al discloses a laminate of an apertured film between two facing layers, wherein the facing layers are bonded to each other through the holes (apertures) punched in the film (p. 16 lines 1-4). In a structure where outer facing layers are bonded to each other through holes in a central (film) layer, the layers would inherently be in intimate contact at the location of the holes. This type of structure is not suggestive of Applicants' Claim 1, which requires forming apertures only through the second layer so that the apertures are effective in transferring particles into the structure and the first layer is effective in retaining them.

Furthermore, Taylor et al does not disclose the step of extruding a heat shrinkable second layer onto the first layer. The disclosed elastic sheet can be formed prior to lamination and unwound from a supply roll, or formed just prior to lamination (p. 14 lines 3-7). In either case, the elastic sheet is formed before it contacts the extensible layer or layers. When a heat shrinkable second layer is extruded onto a first layer, as required by Applicants' Claim 1, the second layer is not completely formed until after it contacts the first layer and is cooled to a solid state. An elastic layer which is completely formed, and then joined to an extensible layer, is not considered to be "extruded" onto the extensible layer.

Furthermore, as explained above, Taylor et al discloses aperturing the elastic film layer only in the embodiment where the film layer is sandwiched between two facing layers, and the facing layers are joined through the apertures (p. 16 lines 1-4). When the two facing layers are employed, Taylor et al clearly states that the elastic sheet is prestretched and set (i.e. completely formed) by the time it is incorporated between the two facing layers (p. 16 lines 10-15).

Haffner is cited as disclosing extrusion of a film onto a fibrous web such that the film remains unbonded to the web until point bonding takes place (Office Action, p. 6). Yet extrusion of the film onto the web seems contrary to the objectives of Taylor et al which states that the elastic sheet is both prestretched and set by the time it is incorporated between the two facing layers (p. 16 lines 10-15). Such an elastic layer would have to be extruded, stretched and set (cooled) before it contacts the facing layers.

The process disclosed in Haffner et al (Figs. 4 and 6 and corresponding description) would apparently not prestretch and set an elastic film before it contacts a nonwoven web, as disclosed in Taylor et al. It is never obvious to combine two references when the proposed modification of the primary reference would defeat its objectives, or substantially change its principle of operation. MPEP 2143.01; In Re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); In Re Ratti, 270 F.2d 810, 123 USPQ 349 (CLPA 1959). The process of Taylor et al apparently requires prestretching and setting of the elastic layer, which objective would be defeated using the process of Haffner et al.

Notably, Haffner et al discloses a process for making neck-bonded laminates. An inelastic nonwoven web is stretched in a machine direction to cause necking

(narrowing) in a cross direction. An elastic film is extruded onto the neck-stretched nonwoven web to form a laminate which is elastically stretchable in the cross direction. These laminates do not require any stretching of the elastic layer prior to bonding.

Furthermore, Haffner et al does not disclose forming apertures only in a second layer (comprising a film) so that the apertures are effective in transferring particles into the structure and the first layer (comprising a nonwoven web) is effective in retaining them. As explained above, Taylor et al also does not disclose these limitations.

Accordingly, the rejection under 35 U.S.C. § 103(a) based on Taylor et al in view of Haffner et al should be withdrawn.

c) Claim Rejections Based On Taylor et al In View Of Haffner et al And Curro et al

The rejection of Claims 4 and 15 under 35 U.S.C. § 103(a) as obvious over Taylor et al in view of Haffner et al and U.S. Patent 5,700,255 ("Curro et al") has been rendered moot by canceling Claims 4 and 15. This rejection should be withdrawn.

d) Claim Rejections Based on Curro et al In View Of Mokry and Wu

The rejection of Claims 1-2, 4, 11-17, 19-20 and 42-43 under 35 U.S.C. § 103(a) as obvious over Curro et al in view of U.S. Patent 5,032,121 ("Mokry") and Wu is respectfully traversed. Curro discloses an elastic waistband having elastic and inelastic members. The reference does not disclose extruding a heat shrinkable second layer onto a first layer. The preferred elastic layer is a three-dimensional macroscopically expanded formed film layer which has a special three-dimensional configuration and cannot be formed by extruding the film layer directly onto another layer (Col. 9 lines 32-43).

Furthermore, while apertures may form in the elastic layer during bonding, the elastic layer is positioned between other layers in a composite structure (Col. 9 lines 42-51; Figs. 2 and 3, elastic layer 76). Because the apertured layer is surrounded, the apertures are not effective in transferring particles onto the composite material, as required by Claim 1. A first layer therefore is not effective in retaining the particles, as required by Claim 1.

Mokry is cited as disclosing extruding a heat shrinkable film onto a web and heat shrinking the film. However, as explained above, the preferred elastic member disclosed in Curro et al is a three-dimensional macroscopically expanded formed film layer, which must be formed prior to lamination and cannot be formed by direct extrusion onto a nonwoven layer. Furthermore, Mokry does not disclose forming apertures only through a second layer after extrusion onto a first layer, so that the apertures are effective in transferring particles into the structure and the first layer is effective in retaining them. As explained above, Wu also does not disclose these limitations.

Accordingly, the rejection under 35 U.S.C. § 103(a) based on Curro et al and Wu should be withdrawn.

e) Claim Rejections Based on DE 2223780 In View Of Wu and Taylor et al.

The rejection of Claims 1-2, 5-6, 11-14, 16-17, 19-20 and 42-43 under 35 U.S.C. § 103(a) as obvious over DE 223780 ("Reifenhauser") in view of Wu and Taylor et al is respectfully traversed. Reifenhauser discloses stretching a film while laying a plurality of fibers on the film so the two bond together. The composite film is then split into fibrilles which are heat shrunk to cause crimping.

Unlike Applicants' Claim 1 (which requires extruding a second layer comprising a film onto a first layer comprising a nonwoven web), Reifenhauser deposits the fibers onto a stretched film. Furthermore, the resulting product is in the form of fibrilles, with each fibrille apparently including a fiber bonded to a fibrillated strip of film. Thus, there is no disclosure of a composite structure in which the apertures in a second (film) layer are effective to transfer particles into the composite structure while the first (nonwoven) layer is effective in retaining them. Because the disclosed composite is split into fibrilles, particles would pass through both layers or neither one.

As explained above, Wu and Taylor et al do not fill the gaps in the primary reference. Neither reference discloses forming apertures only through a second layer, so that the apertures are effective in transferring particles into the structure and the first layer is effective in retaining them. The rejection under 35 U.S.C. § 103(a) based on Reifenhauser in view of Wu and Taylor et al should be withdrawn.

f) Conclusion

Applicants believe that the claims, as now presented, are in condition for allowance. If the Examiner detects any unresolved issues, then Applicants' attorney requests a telephone call from the Examiner, and a telephone interview.

Respectfully submitted,

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